HISTORIC AND DESIGN REVIEW COMMISSION

September 20, 2017

HDRC CASE NO:	**2017-464**
ADDRESS:	3200 MCCULLOUGH AVE
LEGAL DESCRIPTION:	NCB 52 BLK LOT W IRR 764.09 FT OF N IRR 432.1 FT OF TR-18
ZONING:	R-4 H
CITY COUNCIL DIST.:	1
DISTRICT:	Monte Vista Historic District
APPLICANT:	Michael McChesney
OWNER:	St Anthony Catholic High School
TYPE OF WORK:	Installation of new surface parking lot

REQUEST:

The applicant is requesting a Certificate of Appropriateness for approval to construct a new surface parking lot to accommodate 40 cars. The proposal includes the removal of an existing chain link fence, the removal of two existing trees, and the integration of new landscaping elements, including a buffer from the streetscape.

APPLICABLE CITATIONS:

Historic Design Guidelines, Chapter 5, Guidelines for Site Elements

1. Topography
A. TOPOGRAPHIC FEATURES
i. *Historic topography*—Avoid significantly altering the topography of a property (i.e., extensive grading). Do not alter character-defining features such as berms or sloped front lawns that help define the character of the public right-of-way. Maintain the established lawn to help prevent erosion. If turf is replaced over time, new plant materials in these areas should be low-growing and suitable for the prevention of erosion.
ii. *New construction*—Match the historic topography of adjacent lots prevalent along the block face for new construction. Do not excavate raised lots to accommodate additional building height or an additional story for new construction.
iii. *New elements*—Minimize changes in topography resulting from new elements, like driveways and walkways, through appropriate siting and design. New site elements should work with, rather than change, character-defining topography when possible.

3. Landscape Design
A. PLANTINGS
i. *Historic Gardens*— Maintain front yard gardens when appropriate within a specific historic district.
ii. *Historic Lawns*—Do not fully remove and replace traditional lawn areas with impervious hardscape. Limit the removal of lawn areas to mulched planting beds or pervious hardscapes in locations where they would historically be found, such as along fences, walkways, or drives. Low-growing plantings should be used in historic lawn areas; invasive or large-scale species should be avoided. Historic lawn areas should never be reduced by more than 50%.
iii. *Native xeric plant materials*—Select native and/or xeric plants that thrive in local conditions and reduce watering usage. See UDC Appendix E: San Antonio Recommended Plant List—All Suited to Xeriscape Planting Methods, for a list of appropriate materials and planting methods. Select plant materials with a similar character, growth habit, and light requirements as those being replaced.
iv. *Plant palettes*—If a varied plant palette is used, incorporate species of taller heights, such informal elements should be restrained to small areas of the front yard or to the rear or side yard so as not to obstruct views of or otherwise distract from the historic structure.
v. *Maintenance*—Maintain existing landscape features. Do not introduce landscape elements that will obscure the historic structure or are located as to retain moisture on walls or foundations (e.g., dense foundation plantings or vines) or as to cause damage.
B. ROCKS OR HARDSCAPE
i. *Impervious surfaces* —Do not introduce large pavers, asphalt, or other impervious surfaces where they were not historically located.

ii. *Pervious and semi-pervious surfaces*—New pervious hardscapes should be limited to areas that are not highly visible, and should not be used as wholesale replacement for plantings. If used, small plantings should be incorporated into the design.
iii. *Rock mulch and gravel* - Do not use rock mulch or gravel as a wholesale replacement for lawn area. If used, plantings should be incorporated into the design.
C. MULCH
Organic mulch – Organic mulch should not be used as a wholesale replacement for plant material. Organic mulch with appropriate plantings should be incorporated in areas where appropriate such as beneath a tree canopy.
i. *Inorganic mulch* – Inorganic mulch should not be used in highly-visible areas and should never be used as a wholesale replacement for plant material. Inorganic mulch with appropriate plantings should be incorporated in areas where appropriate such as along a foundation wall where moisture retention is discouraged.
D. TREES
i. *Preservation*—Preserve and protect from damage existing mature trees and heritage trees. See UDC Section 35-523 (Tree Preservation) for specific requirements.
ii. *New Trees* – Select new trees based on site conditions. Avoid planting new trees in locations that could potentially cause damage to a historic structure or other historic elements. Species selection and planting procedure should be done in accordance with guidance from the City Arborist.
iii. *Maintenance* – Proper pruning encourages healthy growth and can extend the lifespan of trees. Avoid unnecessary or harmful pruning. A certified, licensed arborist is recommended for the pruning of mature trees and heritage trees.

6. Non-Residential and Mixed Use Streetscapes
A. STREET FURNITURE
i. *Historic street furniture*—Preserve historic site furnishings, including benches, lighting, tree grates, and other features.
ii. *New furniture*—Use street furniture such as benches, trash receptors, tree grates, and tables that are simple in design and are compatible with the style and scale of adjacent buildings and outdoor spaces when historic furnishings do not exist.
B. STREET TREES
i. *Street trees*—Protect and maintain existing street trees. Replace damaged or dead trees with trees of a similar species, size, and growth habit.
C. PAVING
i. *Maintenance and alterations*—Repair stone, masonry, or glass block pavers using in-kind materials whenever possible. Utilize similar materials that are compatible with the original in terms of composition, texture, color, and detail, when in-kind replacement is not possible.
D. LIGHTING
i. *General*—See UDC Section 35-392 for detailed lighting standards (height, shielding, illumination of uses, etc.).
ii. *Maintenance and alterations*—Preserve historic street lights in place and maintain through regular cleaning and repair as needed.
iii. *Pedestrian lighting*—Use appropriately scaled lighting for pedestrian walkways, such as short poles or light posts (bollards).
iv. *Shielding*—Direct light downward and shield light fixtures using cut-off shields to limit light spill onto adjacent properties.
v. *Safety lighting*—Install motion sensors that turn lights on and off automatically when safety or security is a concern. Locate these lighting fixtures as discreetly as possible on historic structures and avoid adding more fixtures than necessary.

7. Off-Street Parking
A. LOCATION
i. *Preferred location*—Place parking areas for non-residential and mixed-use structures at the rear of the site, behind primary structures to hide them from the public right-of-way. On corner lots, place parking areas behind the primary structure and set them back as far as possible from the side streets. Parking areas to the side of the primary structure are acceptable when location behind the structure is not feasible. See UDC Section 35-310 for district-specific standards.
ii. *Front*—Do not add off-street parking areas within the front yard setback as to not disrupt the continuity of the streetscape.
iii. *Access*—Design off-street parking areas to be accessed from alleys or secondary streets rather than from principal streets whenever possible.
B. DESIGN

i. *Screening*—Screen off-street parking areas with a landscape buffer, wall, or ornamental fence two to four feet high—or a combination of these methods. Landscape buffers are preferred due to their ability to absorb carbon dioxide. See UDC Section 35-510 for buffer requirements.
ii. *Materials*—Use permeable parking surfaces when possible to reduce run-off and flooding. See UDC Section 35-526(j) for specific standards.
iii. *Parking structures*—Design new parking structures to be similar in scale, materials, and rhythm of the surrounding historic district when new parking structures are necessary.

8. Americans with Disabilities Act (ADA) Compliance
A. HISTORIC FEATURES
i. *Avoid damage*—Minimize the damage to the historic character and materials of the building and sidewalk while complying with all aspects of accessibility requirements.
ii. *Doors and door openings*—Avoid modifying historic doors or door openings that do not conform to the building and/or accessibility codes, particularly on the front façade. Consider using a discretely located addition as a means of providing accessibility.
B. ENTRANCES
i. *Grade changes*—Incorporate minor changes in grade to modify sidewalk or walkway elevation to provide an accessible entry when possible.
ii. *Residential entrances*—The preferred location of new ramps is at the side or rear of the building when convenient for the user.
iii. *Non-residential and mixed use entrances*—Provide an accessible entrance located as close to the primary entrance as possible when access to the front door is not feasible.
C. DESIGN
i. *Materials*—Design ramps and lifts to compliment the historic character of the building and be visually unobtrusive as to minimize the visual impact, especially when visible from the public right-of-way.
ii. *Screening*—Screen ramps, lifts, or other elements related to ADA compliance using appropriate landscape materials. Refer to Guidelines for Site Elements for additional guidance.
iii. *Curb cuts*—Install new ADA curb cuts on historic sidewalks to be consistent with the existing sidewalk color and texture while minimizing damage to the historical sidewalk.

FINDINGS:

a. The property located at 3200 McCullough Ave is the campus of St. Anthony Catholic High School. The property contains several structures and elements, including the historic high school building, several sports fields, a pavilion, and mixed-use educational and recreational facilities. The applicant has proposed to construct a new surface parking lot on the southwestern boundary of the property. The lot will front McCullough Ave and an existing internal concrete driveway. The proposal includes 14 new parking spaces to the north of the existing internal concrete driveway.
b. TREE REMOVAL – The existing area features grass, several trees, fencing, and several stumps. According to the submitted site plan, two trees will be removed, one oak and one 9’ Mt. Laurel. The proposal accommodates several other existing trees and introduces new trees. Staff finds the tree removal appropriate based on these considerations.
c. FENCE REMOVAL – The applicant has proposed to remove an existing chain link fence fronting McCullough Ave to make way for the proposed parking and site modifications. Chain link fences are prohibited in historic districts and are not characteristic of fences in Monte Vista. Staff finds its removal appropriate.
d. PARKING LOT – The proposed parking lot hardscaping coverage will accommodate 40 new cars. The applicant has noted that the parking lot is needed, as the lease on an existing parking lot to the south has expired. The proposed parking lot will expand upon an existing internal asphalt driveway. A majority of the new hardscaping will be located at the southwestern corner of the property, just to the north of the existing parking lot on an adjacent lot. The proposal includes 14 new parking spaces to the north of the existing driveway that runs west to east. According to the Historic Design Guidelines for Site Elements, off-street parking for non-residential structures should be located at the rear of the site whenever possible. Parking should be accessed from side streets or alleys where feasible. The property is bounded to the north by E Kings Hwy, which is a residential streetscape. The proposal integrates existing hardscaping and parking and fronts a commercial thoroughfare with faster traffic and minimal residential context. Based on these contextual considerations, staff finds the location appropriate.

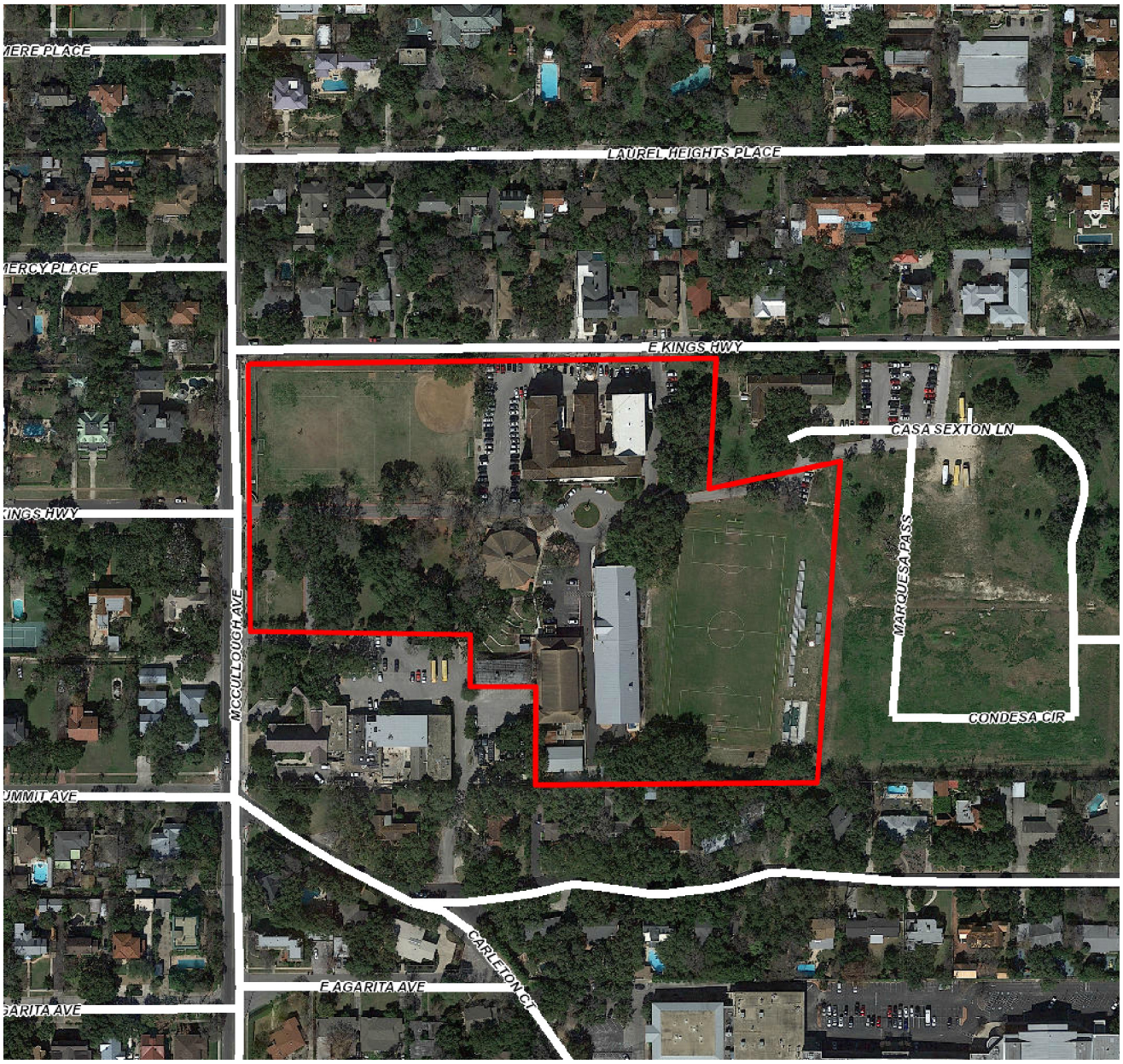
e. LANDSCAPING AND SCREENING – The proposal includes a new 4' tall landscape buffer from the McCullough street and sidewalk. The proposed buffer includes a new river rock border, a shrub screen, and several new Mt Laurel trees. The landscaping plan also includes two new Cedar Elms between the first five parking spaces to the north as accessed from McCullough Ave. According to the Guidelines, off-street parking areas should be screened with a landscape buffer, wall, or ornamental fence two to four feet high—or a combination of these methods. Staff finds the proposal consistent with the Guidelines.

RECOMMENDATION:

Staff recommends approval based on findings a through e.

CASE MANAGER:

Stephanie Phillips



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Flex Viewer

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Printed:Sep 15, 2017

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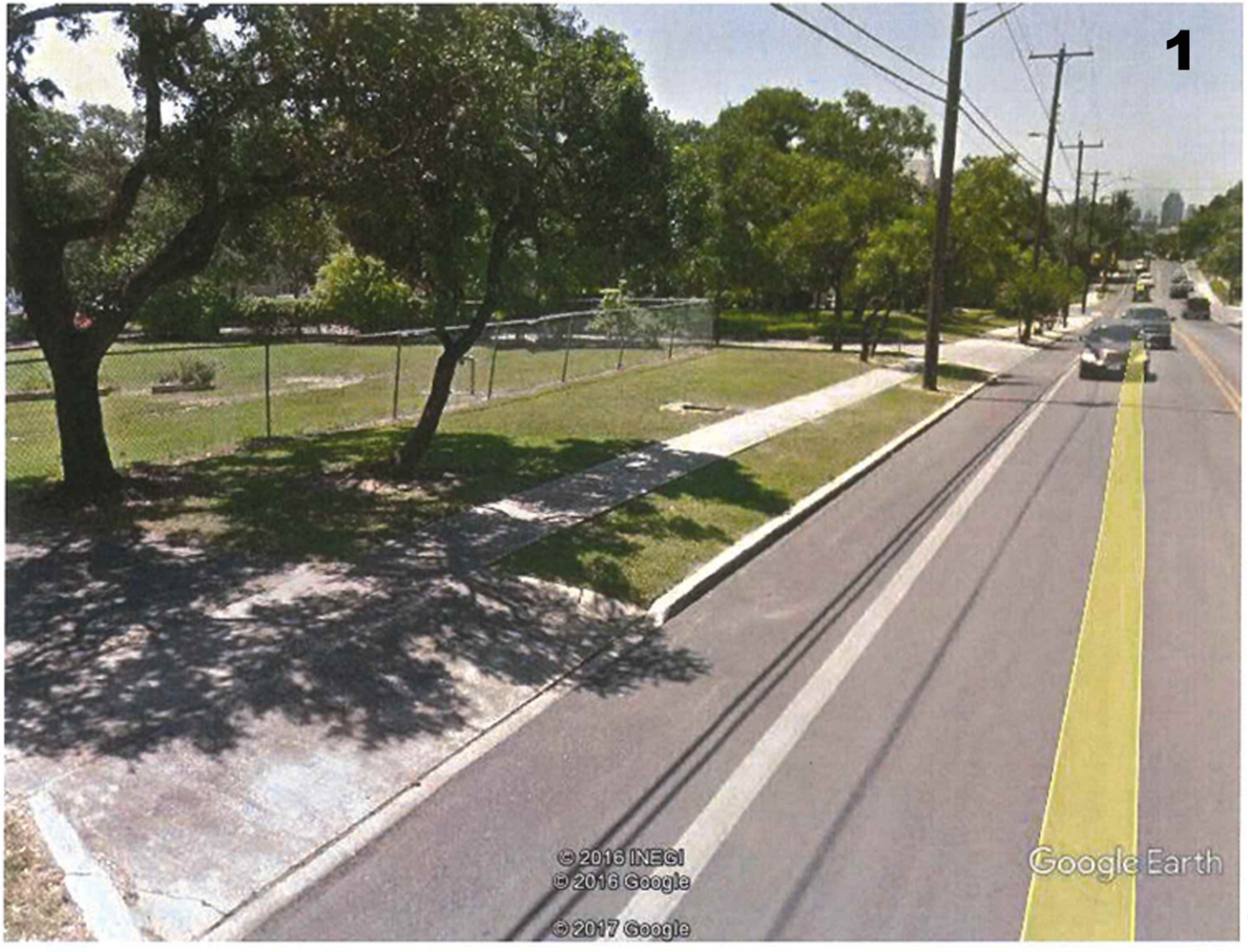

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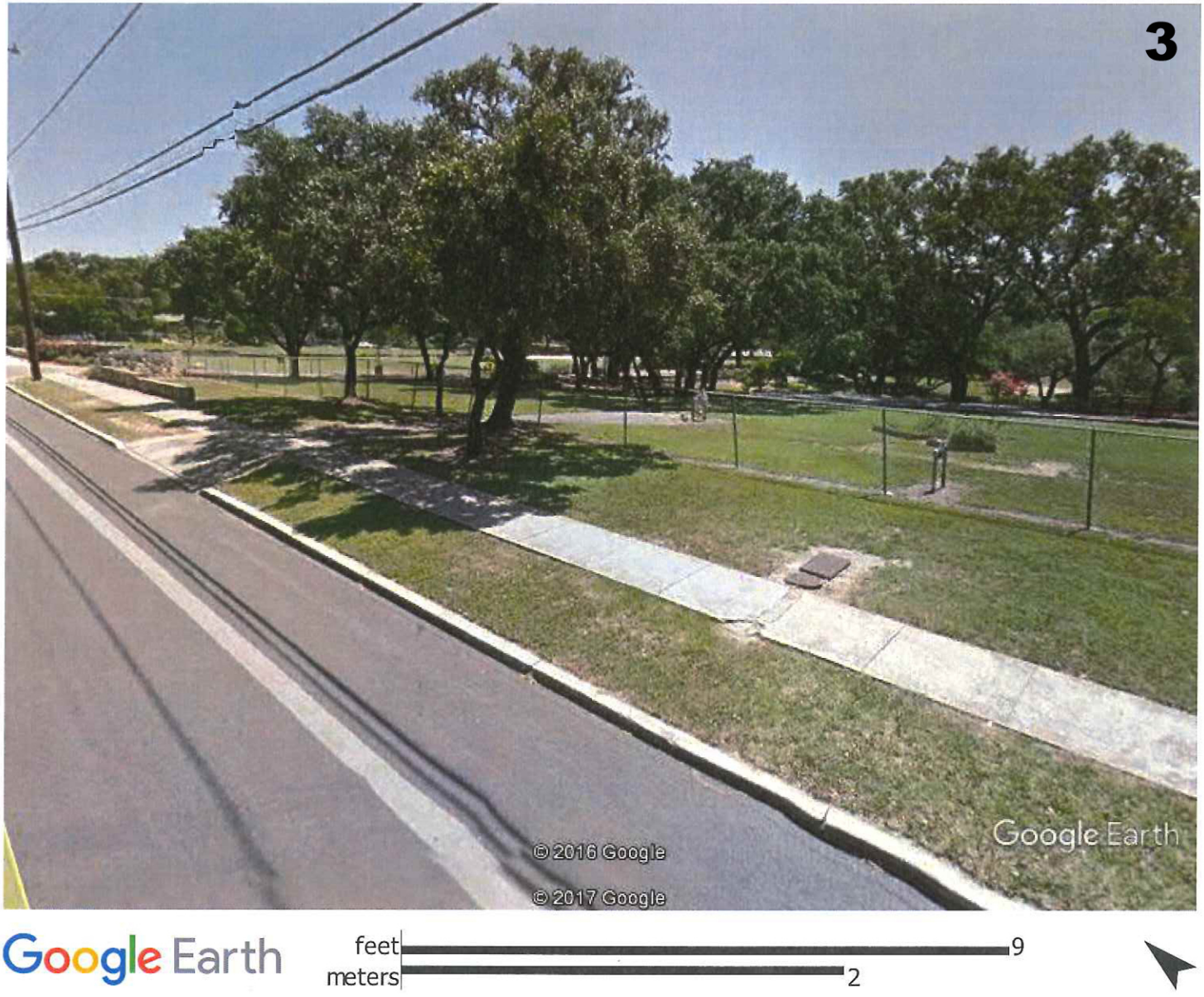
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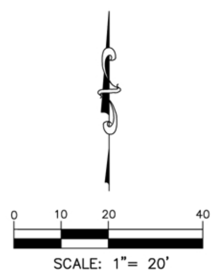
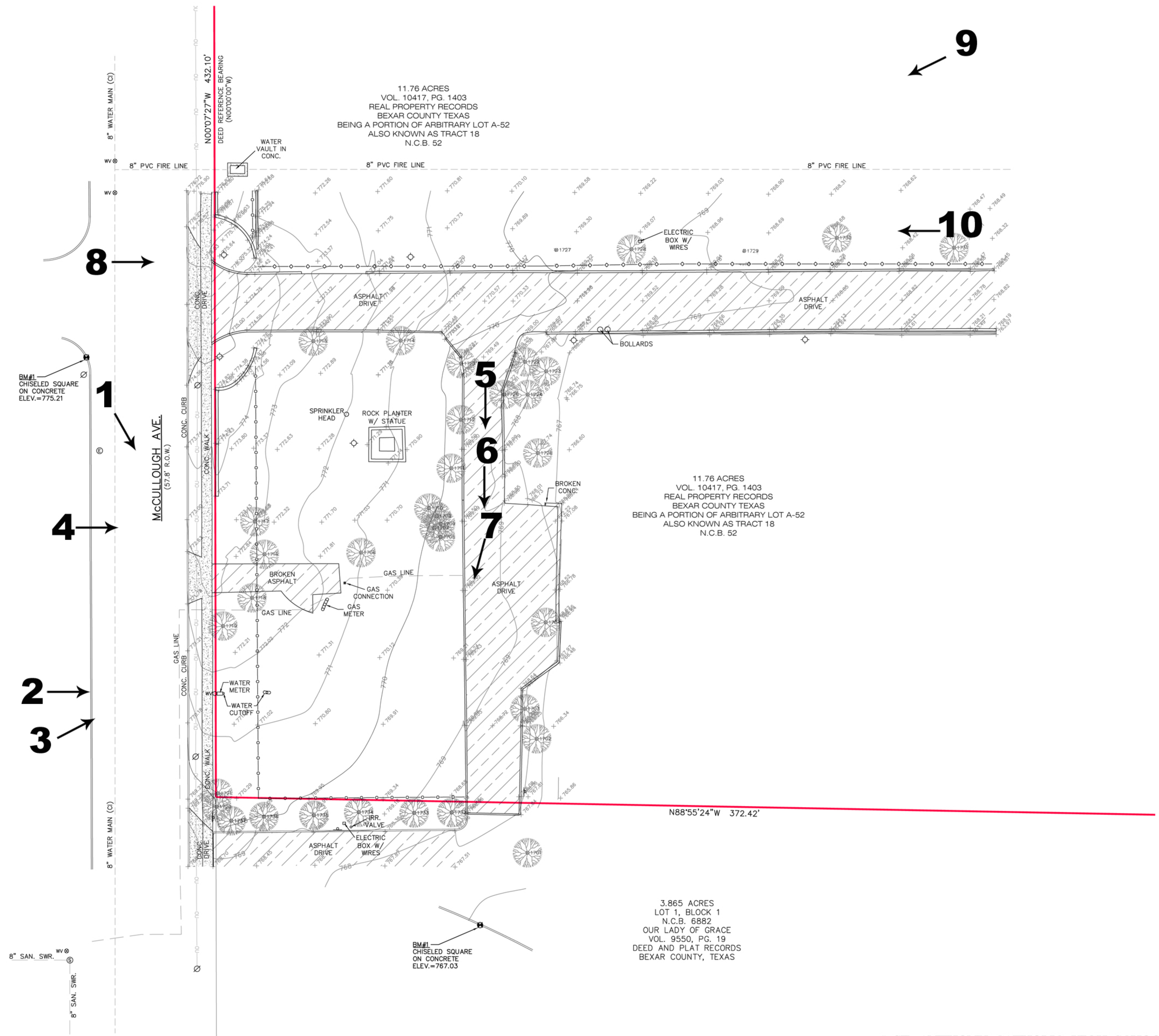


SURVEY LEGEND

- BENCHMARK
- CO EXISTING SANITARY SEWER CLEANOUT
- LP EXISTING LIGHT POLE
- LP EXISTING LIGHT POLE
- IRV EXISTING IRRIGATION VALVE
- ICB EXISTING IRRIGATION CONTROL BOX
- WS EXISTING WATER SPRINKLER
- W EXISTING WATER LINE
- WV EXISTING WATER VALVE
- EB EXISTING ELECTRIC BOX
- OHE EXISTING OVERHEAD ELECTRIC
- EXISTING POWER POLE
- EXISTING CHAINLINK FENCE
- EXISTING WOOD FENCE
- EXISTING SIGN
- EXISTING CONCRETE SURFACE
- ×770.00 EXISTING SPOT ELEVATION
- 770 PROPOSED CONTOUR
- 770.00× PROPOSED SPOT ELEVATION
- DRAINAGE FLOW DIRECTION

TREE TABLE	
TREE NO.	TREE DESCRIPTION
1701	20" OAK
1702	14" OAK
1703	12" OAK
1704	32" OAK
1705	14" OAK
1706	12" MTN LAUREL
1707	12" OAK
1708	14" OAK
1709	16" OAK
1710	20" OAK
1711	18" ELM
1712	14" ELM
1713	18" OAK
1714	20" RED OAK
1715	22" OAK
1716	6" MTN LAUREL
1717	15" OAK
1718	20" OAK
1719	7" MTN LAUREL
1720	6" MTN LAUREL
1721	6" MTN LAUREL
1722	25"OAK
1723	20"OAK
1724	25"OAK
1725	21"OAK
1726	27"OAK
1727	26" STUMP
1728	16" ELM
1729	28" STUMP
1730	46" OAK
1731	25" RED OAK
1732	7" OAK
1733	4" OAK
1734	7" OAK
1735	4" OAK
1736	4" OAK
1737	7" MTN LAUREL



SURVEY DATUM:

VERTICAL DATUM: NAVD88 (GEOID12B)
HORIZONTAL DATUM: TEXAS STATE PLANE
COORDINATE SYSTEM, ZONE 4204 (US SURVEY FT.)

" ST. ANTHONY CATHOLIC HIGH SCHOOL "

UNIVERSITY OF THE
INCARNATE WORD
3200 McCULLOUGH AVE SAN ANTONIO, TEXAS 78212

R E V I S I O N S	NO.	DATE	COMMENTS

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ST. ANTHONY CATHOLIC HIGH SCHOOL
TOPO AND IMPROVEMENT SURVEY
CITY OF SAN ANTONIO, COUNTY OF BEXAR, STATE OF TEXAS

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DRAWN BY: B.A.D.
CHECKED BY:
DATE: 07-25-17
PROJECT NO: 982294-93

SHEET
1 of 1

ALSO KNOWN AS TRACT 18
N.C.B. 52

8" PVC FIRE LINE

8" PVC FIRE LINE

8" PVC FIRE LINE

WATER VAULT IN CONC.

NEW PARKING

NEW PARKING

NEW PARKING

1729

NEW CEDAR ELMS

EXISTING ASPHALT DRIVE

ASPHALT DRIVE

BOLLARDS

BM#1
CHISELED SQUARE ON CONCRETE
ELEV.=775.21

McCULLOUGH AVE.
(57.8' R.O.W.)

CONC. CURB

CONC. WALK

CONC. DRIVE

ROCK PLANTER W/ STATUE

EXISTING TREES

BROKEN CONC.

9" MT. LAUREL TO BE REMOVED

GAS LINE

GAS CONNECTION

GAS METER

GAS LINE

NEW MT. LAURELS

NEW SHRUB SCREEN

NEW PARKING

NEW RIVER ROCK BORDER

DECOMPOSED GRANITE

EXIST. OAK TO BE REMOVED

EXISTING ASPHALT DRIVE

EXISTING ASPHALT DRIVE

N88°55'24"W 372.42'

11.76 ACRES
VOL. 10417, PG. 1403
REAL PROPERTY RECORDS
BEXAR COUNTY TEXAS
BEING A PORTION OF ARBITRARY LOT A-52
ALSO KNOWN AS TRACT 18
N.C.B. 52

LANDSCAPE ARCHITECTURE
MASTER PLANNING
URBAN DESIGN

LAFFOON ASSOCIATES

319 HARMON DR., SUITE 100
SAN ANTONIO, TEXAS 78209
210.828.0455 laffoon@sbcglobal.net

1 LANDSCAPE PLAN

SCALE: 1" = 20'-0"

8" WATER MAIN (CI)

3" SAN. SWR.

BM#1
CHISELED SQUARE ON CONCRETE
ELEV.=767.03

3.865 ACRES
LOT 1, BLOCK 1
N.C.B. 6882
OUR LADY OF GRACE
VOL. 9550, PG. 19
DEED AND PLAT RECORDS
BEXAR COUNTY, TEXAS

ST. ANTHONY HIGH SCHOOL PARKING - SITE PLAN

McCHESNEY/BIANCO ARCHITECTURE

SCALE: 1" = 30'-0"

AUGUST 29 2017

TREE TABLE

TREE NO.	TREE DESCRIPTION
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1702	14" OAK
1703	12" OAK
1704	32" OAK
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1736	4" OAK
1737	7" MTN LAUREL

SECTION 321216 - ASPHALT PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Hot-mix asphalt patching.
   2. Hot-mix asphalt paving.
   3. Asphalt surface treatments.

B. Related Requirements:
   1. Section 312000 "Earth Moving" for subgrade preparation, fill material, unbound-aggregate subbase and base courses, and aggregate pavement shoulders.
   2. Geotechnical Report

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

   1. Review methods and procedures related to hot-mix asphalt paving including, but not limited to, the following:

      a. Review proposed sources of paving materials, including capabilities and location of plant that will manufacture hot-mix asphalt.
      b. Review requirements for protecting paving work, including restriction of traffic during installation period and for remainder of construction period.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

   1. Include technical data and tested physical and performance properties.
   2. Job-Mix Designs: Certification, by authorities having jurisdiction, of approval of each job mix proposed for the Work.

1.5 INFORMATIONAL SUBMITTALS

A. Material Test Reports: For each paving material, by a qualified testing agency.

1.6 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of TXDOT for asphalt paving work.

1. Measurement and payment provisions and safety program submittals included in standard specifications do not apply to this Section.

1.7 FIELD CONDITIONS

A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp, if rain is imminent or expected before time required for adequate cure, or if the following conditions are not met:

1. Prime Coat: Minimum surface temperature of 60 deg F.
2. Tack Coat: Minimum surface temperature of 60 deg F.
3. Slurry Coat: Comply with weather limitations in ASTM D 3910.
4. Asphalt Surface Course: Minimum surface temperature of 60 deg F at time of placement.

PART 2 - PRODUCTS

2.1 AGGREGATES

A. General: Use materials and gradations that have performed satisfactorily in previous installations.

B. Coarse Aggregate: ASTM D 692/D 692M, sound; angular crushed stone, crushed gravel.

1. For hot-mix asphalt, limit natural sand to a maximum of 20 percent by weight of the total aggregate mass.

C. Mineral Filler: ASTM D 242/D 242M, rock or slag dust, hydraulic cement, or other inert material.

2.2 ASPHALT MATERIALS

A. Cutback Prime Coat: ASTM D 2027, medium-curing cutback asphalt, MC-30 or MC-70.

B. Emulsified Asphalt Prime Coat: ASTM D 977 emulsified asphalt, or ASTM D 2397 cationic emulsified asphalt, slow setting, diluted in water, of suitable grade and consistency for application.

C. Tack Coat: ASTM D 977 emulsified asphalt, or ASTM D 2397 cationic emulsified asphalt, slow setting, diluted in water, of suitable grade and consistency for application.

D. Water: Potable.

2.3 AUXILIARY MATERIALS

A. Sand: ASTM D 1073, Grade No. 2 or No. 3.

B. Joint Sealant: ASTM D 6690, Type I, hot-applied, single-component, polymer-modified bituminous sealant.

2.4 MIXES

A. Hot-Mix Asphalt: Dense-graded, hot-laid, hot-mix asphalt plant mixes approved by authorities having jurisdiction and complying with the following requirements:

1. Provide mixes with a history of satisfactory performance in geographical area where Project is located.

B. Emulsified-Asphalt Slurry: ASTM D 3910, Type 2.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that subgrade is dry and in suitable condition to begin paving.

B. Proof-roll subgrade below pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.
2. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Architect, and replace with compacted backfill or fill as directed.

C. Proceed with paving only after unsatisfactory conditions have been corrected.

3.2 PATCHING

A. Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches into perimeter of adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Recompact existing unbound-aggregate base course to form new subgrade.

B. Portland Cement Concrete Pavement: Break cracked slabs and roll as required to reseat concrete pieces firmly.

1. Pump hot undersealing asphalt under rocking slab until slab is stabilized or, if necessary, crack slab into pieces and roll to reseat pieces firmly.
2. Remove disintegrated or badly cracked pavement. Excavate rectangular or trapezoidal patches, extending into perimeter of adjacent sound pavement, unless otherwise

indicated. Cut excavation faces vertically. Recompact existing unbound-aggregate base course to form new subgrade.

C. Tack Coat: Before placing patch material, apply tack coat uniformly to vertical asphalt surfaces abutting the patch. Apply at a rate of 0.05 to 0.15 gal./sq. yd..

1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

D. Placing Patch Material: Fill excavated pavement areas with hot-mix asphalt base mix for full thickness of patch and, while still hot, compact flush with adjacent surface.

E. Placing Patch Material: Partially fill excavated pavements with hot-mix asphalt base mix and, while still hot, compact. Cover asphalt base course with compacted, hot-mix surface layer finished flush with adjacent surfaces.

3.3 REPAIRS

A. Leveling Course: Install and compact leveling course consisting of hot-mix asphalt surface course to level sags and fill depressions deeper than 1 inch in existing pavements.

1. Install leveling wedges in compacted lifts not exceeding 3 inches thick.

B. Crack and Joint Filling: Remove existing joint filler material from cracks or joints to a depth of 1/4 inch.

1. Clean cracks and joints in existing hot-mix asphalt pavement.
2. Use emulsified-asphalt slurry to seal cracks and joints less than 1/4 inch wide. Fill flush with surface of existing pavement and remove excess.
3. Use hot-applied joint sealant to seal cracks and joints more than 1/4 inch wide. Fill flush with surface of existing pavement and remove excess.

3.4 SURFACE PREPARATION

A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.

B. Cutback Prime Coat: Apply uniformly over surface of compacted unbound-aggregate base course at a rate of 0.15 to 0.50 gal./sq. yd.. Apply enough material to penetrate and seal, but not flood, surface. Allow prime coat to cure.

1. If prime coat is not entirely absorbed within 24 hours after application, spread sand over surface to blot excess asphalt. Use enough sand to prevent pickup under traffic. Remove loose sand by sweeping before pavement is placed and after volatiles have evaporated.
2. Protect primed substrate from damage until ready to receive paving.

C. Emulsified Asphalt Prime Coat: Apply uniformly over surface of compacted unbound-aggregate base course at a rate of 0.10 to 0.30 gal./sq. yd. per inch depth. Apply enough material to penetrate and seal, but not flood, surface. Allow prime coat to cure.

1. If prime coat is not entirely absorbed within 24 hours after application, spread sand over surface to blot excess asphalt. Use enough sand to prevent pickup under traffic. Remove loose sand by sweeping before pavement is placed and after volatiles have evaporated.
2. Protect primed substrate from damage until ready to receive paving.

D. Tack Coat: Apply uniformly to surfaces of existing pavement at a rate of 0.05 to 0.15 gal./sq. yd..

1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

3.5 PLACING HOT-MIX ASPHALT

A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand in areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.
1. Place hot-mix asphalt surface course in single lift.
2. Spread mix at a minimum temperature of 250 deg F.
3. Begin applying mix along centerline of crown for crowned sections and on high side of one-way slopes unless otherwise indicated.
4. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.

B. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.

1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Overlap mix placement about 1 to 1-1/2 inches from strip to strip to ensure proper compaction of mix along longitudinal joints.
2. Complete a section of asphalt base course before placing asphalt surface course.

C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.6 JOINTS

A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.

1. Clean contact surfaces and apply tack coat to joints.
2. Offset longitudinal joints, in successive courses, a minimum of 6 inches.
3. Offset transverse joints, in successive courses, a minimum of 24 inches.
4. Construct transverse joints at each point where paver ends a day's work and resumes work at a subsequent time. Construct these joints using either "bulkhead" or "papered" method according to AI MS-22, for both "Ending a Lane" and "Resumption of Paving Operations."

5. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.
6. Compact asphalt at joints to a density within 2 percent of specified course density.

3.7 COMPACTION

A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.

1. Complete compaction before mix temperature cools to 185 deg F.

B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.

C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:

1. Average Density: 96 percent of reference laboratory density according to ASTM D 6927, but not less than 94 percent or greater than 100 percent.

D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.

E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.

F. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.

G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.8 INSTALLATION TOLERANCES

A. Pavement Thickness: Compact each course to produce the thickness indicated within the following tolerances:

1. Base Course: Plus or minus 1/2 inch.
2. Surface Course: Plus 1/4 inch, no minus.

B. Pavement Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:

1. Base Course: 1/4 inch.
2. Surface Course: 1/8 inch.

3.9 SURFACE TREATMENTS

A. Slurry Seals: Apply slurry coat in a uniform thickness according to ASTM D 3910 and allow to cure.

1. Roll slurry seal to remove ridges and provide a uniform, smooth surface.

3.10 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

B. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D 3549.

C. Surface Smoothness: Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances.

D. In-Place Density: Testing agency will take samples of uncompacted paving mixtures and compacted pavement according to ASTM D 979.

1. Reference maximum theoretical density will be determined by averaging results from four samples of hot-mix asphalt-paving mixture delivered daily to site, prepared according to ASTM D 2041, and compacted according to job-mix specifications.
2. In-place density of compacted pavement will be determined by testing core samples according to ASTM D 1188 or ASTM D 2726.

a. One core sample will be taken for every 1000 sq. yd. or less of installed pavement, with no fewer than three cores taken.
b. Field density of in-place compacted pavement may also be determined by nuclear method according to ASTM D 2950 and correlated with ASTM D 1188 or ASTM D 2726.

E. Replace and compact hot-mix asphalt where core tests were taken.

F. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

3.11 WASTE HANDLING

A. General: Handle asphalt-paving waste according to approved waste management plan required in Section 017419 "Construction Waste Management and Disposal."

END OF SECTION 321216

SECTION 321600 – CURBS AND SIDEWALKS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Sheet Drawings, Details, and general provisions of Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section.

1.2 SUMMARY

A. Contractor shall furnish all labor, materials, equipment and incidentals required to provide concrete curbs and sidewalks as shown and specified.

B. The types of Work covered by these Specifications are conventionally formed or machine formed curbs and conventionally - formed sidewalks.

C. The thickness and extent of curbs and sidewalks are shown on the Drawings.

1.3 REFERENCES

A. Section 032000 – Concrete Reinforcing

B. Section 033000 - Cast-In-Place Concrete

1.4 QUALITY ASSURANCE

A. Reference Standards: Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.

1. ASTM D 1190, Concrete Joint Sealer, Hot Poured Elastic type.

B. Applicator Qualifications: Demonstrate previous experience in installing concrete curbs and sidewalks.

1.5 SUBMITTALS

A. Samples: Submit for approval samples, manufacturer's product data, test reports and material certifications as required in referenced Sections for Concrete Work.

B. Certificates: Manufacturer's certification that sealer meets Specification requirements.

C. Shop Drawings: Submit for approval copies of dimensioned layout of the Work, showing pattern, expansion joints and reinforcing.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Reinforcing Bars: Deformed steel bars and shall comply with requirements of Section 0032000, Concrete Reinforcement.

B. Concrete Materials: Comply with requirements for formwork, concrete materials, admixtures, bonding materials, curing materials and others as required.

C. Expansion Joint Material: Comply with requirements for expansion joint fillers.

2.2 CONCRETE MIX, DESIGN AND TESTING

A. Comply with requirement of applicable provisions for concrete mix design, sampling and testing, and quality control.

B. Design the mix to produce concrete having a minimum compressive strength, of 3,000 psi with a 5" slump range and air content.

PART 3 - EXECUTION

3.1 SUBGRADE PREPARATION

A. Preparation of the subgrade including compaction shall be completed for the full width of the Work.

1. Where the subgrade is constructed by excavation of existing grade, the top 6 inches of the subgrade shall be compacted to at least 90 percent of maximum density at optimum moisture content.
2. Where the subgrade shall be made smooth and compacted per these specifications or as shown on the drawings.
3. The existing grade shall be brought to the final lines and grades utilizing select backfill as specified in Section 310000 - Earthwork. The compaction requirements of Section 314316 apply to this Section.

B. Base: Base shall be provided as shown on the Contract Drawings. The material shall be select backfill as specified in Section 310000 - Earthwork, and compacted as specified.

3.2 FORM CONSTRUCTION

A. Set forms to line and grade. Install forms over full length of curbs and sidewalks.

3.3 REINFORCEMENT

A. Locate, place, and support reinforcement as specified in Section 032100, unless otherwise shown. Size of reinforcement shall be as shown on drawings.

3.4 CONCRETE PLACEMENT

A. General: Comply with the requirements for mixing and placing concrete, and as specified.

B. For concrete curbs and sidewalks, place concrete in one course, monolithic construction, for the full width and depth of curbs and sidewalks.

3.5 JOINTS

A. General: Construct expansion, contraction, and construction joints with faces perpendicular to surface of the concrete curb and sidewalk. Construct transverse joints at right angles to the Work centerline and as shown on drawings.

B. Scored Contraction Joints: Provide these joints at 10 feet on centers for concrete curbs and 5 feet on centers for sidewalks. Provide at closer spacing where indicated in drawings for visual effect.

C. Construction Joints: Place joints at locations where placement operations are stopped for a period of more than 2 hour, except where such pours terminate at expansion joints.

D. Expansion Joints: Provide 2 inch expansion joint filler and pourable sealant where Work abuts existing structures or new foundations, including the new concrete ramps and steps and at 15 foot spacing for straight runs. If curbs and sidewalks are not poured monolithically, provide expansion joints where each abuts the other.

1. Place top of expansion joint material not less than 2 inch or more than 1 inch below concrete surface. Apply joint sealer on top of expansion joint material, flush with concrete surface, and in accordance with manufacturer's instructions.

3.6 CONCRETE FINISHING

A. All sidewalk surfaces to receive light broom finish. All curbs to be smooth finish. Smooth surfaces to receive smooth finish by screeding and floating.

B. Work edges of curb and sidewalk, and transverse joints; and round to 1/4 inch radius.

C. Complete surface finishing by drawing a fine-hair broom across surface, perpendicular to line of traffic.

3.7 CURING

A. Protect and cure finished concrete curbs and sidewalks, complying with applicable requirements of Section 321600.

3.8 REPAIR AND CLEANING

A. Repair or replace broken or defective curbs and sidewalks as directed by the Architect.

B. Sweep work and wash free of stains, discolorations, dirt or other foreign material.

3.9 REPAIR OF EXISTING CONCRETE CURB AND SIDEWALK AREAS

A. Repair and/or patch any and all damage to existing concrete curbs and sidewalk surfaces resulting from construction operations with materials to match existing.

3.10 SCHEDULE

A. Concrete Sidewalks: 2500 psi 28 day concrete 4 inches thick with #3 steel reinforcing bars at 18" o.c. both ways portland cement light, broom finish and troweled edges.

B. Concrete Sidewalks: 2500 psi 28 day concrete, machine laid curbs, Portland cement light broom finish and troweled edges.

C. Concrete Ramps: 3000 psi 28 day concrete, cast in place, portland cement light, broom finish and troweled edges.

END OF SECTION 321600